WHAT IS CLAIMED IS:

1. A system for driving an electric motor including a permanent magnet type synchronous motor, an inverter for driving said electric motor, means for issuing a rotational frequency command to said electric motor, and means for generating a control signal to said inverter on the basis of the rotational frequency command, said system comprising:

means for correcting the rotational frequency command to said electric motor on the basis of detection values of currents which are caused to flow through said electric motor; and

means for comparing the correction amount with a threshold value which is previously set for the correction amount to judge when the correction amount exceeds the threshold value at least one or more times that said electric motor is in the step-out state.

2. A system for driving an electric motor including a permanent magnet type synchronous motor, an inverter for driving said electric motor, means for issuing a rotational frequency command to said electric motor, and means for generating a control signal to said inverter on the basis of the rotational frequency command, said system comprising:

means for operating arithmetically an A.C. phase with a magnetic pole axis of said electric motor as the reference;

means for detecting values of currents which

are caused to flow through said electric motor;

means for estimating and operating arithmetically an axis error between the A.C. phase and the actual magnetic pole axis phase in said electric motor using the current detection values; and

means for comparing the axis error with a threshold value which is previously set for the axis error to judge when the axis error exceeds the threshold value at least one or more times that said electric motor is in the step-out state.

3. A system for driving an electric motor including a permanent magnet type synchronous motor, an inverter for driving said electric motor, means for issuing a rotational frequency command to said electric motor, and means for generating a control signal to said inverter on the basis of the rotational frequency command, said system comprising:

means for operating arithmetically a reactive power of said electric motor; and

means for discriminating the step-out of said electric motor on the basis of the magnitude of the reactive power.

4. A system for driving an electric motor including a permanent magnet type synchronous motor, an inverter for driving said electric motor, means for issuing a rotational frequency command to said electric motor, and means for generating a control signal to said inverter on the basis of the rotational frequency

command, said system comprising:

means for detecting currents which are caused to flow through said electric motor, observing the detection values on the rotational coordinate axes with an arbitrary axis as the reference, and operating arithmetically a reactive power of said electric motor on the basis of the voltage commands on the coordinate axes or voltage detection values on the coordinate axes to discriminate the step-out of said electric motor on the basis of the magnitude of the reactive power.

5. A system for driving an electric motor according to claim 3, further comprising means for operating arithmetically an effective power simultaneously with the arithmetic operation of the reactive power to discriminate the step-out of said electric motor on the basis of the ratio of the reactive power to the effective power.

6. A system for driving an electric motor including a permanent magnet type synchronous motor, an inverter for driving said electric motor, means for issuing a rotational frequency command to said electric motor, means for operating arithmetically A.C. phases with the magnetic pole axis of said electric motor as the reference on the basis of the rotational frequency command, means for generating current commands of axis components with the magnetic pole axis as a dc-axis and with the axis intersecting perpendicularly the dc axis as a qc-axis, means for operating arithmetically

voltage commands of axis components on the basis of the current commands, and means for generating a control signal to said inverter on the basis of the voltage commands and the A.C. phases, said system comprising:

means for detecting currents which are caused to flow through said electric motor;

means for coordinate-converting the detection values into the dc-qc-axes components;

means for operating arithmetically a first reactive power on the basis of the dc-qc-axes current detection values and the voltage commands;

means for operating arithmetically a second reactive power on the basis of the current commands on the dc-qc-axes and the voltage commands; and

means for comparing the first and second reactive powers with each other to discriminate the step-out of said electric motor.

7. A system for driving an electric motor according to claim 3, wherein in the arithmetic operation of the reactive power(s) or the effective power used in the discrimination of the step-out of said electric motor, the individual powers or the discrimination reference of the step-out is corrected using the rotational frequency command to carry out the step-out discrimination.

8. A system for driving an electric motor according to claim 1, wherein when it is discriminated that said electric motor is in the step-out state, the

application of the voltages to said electric motor is released and then said electric motor is activated again to be accelerated up to the rotational speed in the step-out.

9. A system for driving an electric motor according to claim 1, wherein when it is discriminated that said electric motor is in the step-out state, it is reported by the display, an alarm sound or electrical communication means that said electric motor is in the step-out state.